ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 5345 • f 603 926 5971
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March 23, 2011

Mr. Arthur Powers
Exxon Mobil Oil Corporation
52 Beacham Street
Everett, Massachusetts 02149

Dear Mr. Powers:

Enclosed, please find one (1) copy of our report presenting the results of a toxicity test completed using an effluent sample collected from the Exxon Mobil Terminal located in Everett, Massachusetts during March 2011. Acute toxicity was evaluated using the marine species, *Americamysis bahia*.

Please do not hesitate to call me, Kirk Cram or Petra Karbe should you have any questions regarding the report.

Sincerely,

EnviroSystems, Incorporated

Kenneth A. Simon
President

Enclosure
WET Test Report Certification
Report Number 20747-11-03
One (1) copy + email

cc: Ms. Sandra Perry - Triumvirate Environmental (1 copy)

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
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envirosystems.com

March 23, 2011

Ms. Sandra Perry
Triumvirate Environmental
61 Inner Belt Road
Somerville, Massachusetts 02143

Dear Ms. Perry:

Enclosed, please find one (1) copy of our report presenting the results of a toxicity test completed using an effluent sample collected from the Exxon Mobil Terminal located in Everett, Massachusetts during March 2011. Acute toxicity was evaluated using the marine species, *Americamysis bahia*.

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cc: Mr. Arthur Powers - Exxon Mobil (1 copy)

TOXICOLOGICAL EVALUATION
OF A TREATED INDUSTRIAL EFFLUENT
BIOMONITORING SUPPORT FOR A NPDES PERMIT:
March 2011

Exxon Mobil Oil Corporation
Everett, Massachusetts
NPDES Permit Number MA0000833

Prepared For

Exxon Mobil Oil Corporation
52 Beacham Street
Everett, Massachusetts 02149

By

EnviroSystems, Incorporated
One Lafayette Road
Hampton, New Hampshire 03842

March 2011
Reference Number Exxon Mobil20747-11-03

STUDY NUMBER 20747

EXECUTIVE SUMMARY

The following summarizes the results of an acute exposure bioassay performed during March 2011 in support of the NPDES biomonitoring requirements of the Exxon Mobil terminal located in Everett, Massachusetts. An acute definitive assay was completed using the marine species, *Americamysis bahia*.

A. bahia were ≤5 days old at the start of the test. Dilution water, provided by ESI, was from the Hampton-Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Samples were received under chain of custody in good order. All sample receipt, test conditions and control endpoints were within protocol specifications except where otherwise noted. The results presented in this report relate only to the samples described on the chain(s) of custody and sample receipt log(s).

Results from the acute exposure assay and their relationship to permit limits are summarized in the following matrix.

Acute Toxicity Evaluation

Species	Exposure	LC-50	A-NOEC	Permit Limit (LC-50)	Meets Permit Limit	Assay Meets Protocol Limit
Americamysis bahia	48 Hours	>100%	100%	>50%	Yes	Yes

TOXICOLOGICAL EVALUATION
OF A TREATED INDUSTRIAL EFFLUENT
BIOMONITORING SUPPORT FOR A NPDES PERMIT:
March 2011

Exxon Mobil Oil Corporation
Everett, Massachusetts
NPDES Permit Number MA0000833

1.0 INTRODUCTION

This report presents the results of an acute toxicity test completed on an effluent sample collected from the Exxon Mobil terminal located in Everett, Massachusetts. The sample was provided by Triumvirate Environmental, Somerville, Massachusetts. Testing was based on programs and protocols developed by the US EPA (2002) and involved completing a 48 hour acute toxicity test with the marine species, *Americamysis bahia*. Testing was performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire in accordance with the provisions of the NELAC Standards (2000).

Acute toxicity tests involve preparing a series of concentrations by diluting effluent with control water. Groups of test animals are exposed to each effluent concentration and a control for a specified period. In acute tests, mortality data for each concentration are used to calculate (by regression) the median lethal concentration, or LC-50, defined as the effluent concentration which kills half of the test animals. Samples with high LC-50 values are less likely to cause significant environmental impacts. The acute no observed effect concentration (A-NOEC) provides information on the effluent concentration having minimal acute effects in the environment and is defined as the highest tested effluent concentration that causes no significant mortality.

2.0 MATERIALS AND METHODS

2.1 General Methods

Toxicological and analytical protocols used in this program follow procedures primarily designed by the EPA to provide standard approaches for the evaluation of toxicological effects of discharges on aquatic organisms, and for the analysis of water samples. See Section 4.0 for a list of references.

2.2 Test Species

When necessary, *A. bahia* were acclimated to approximate test conditions prior to use in the assay and then transferred to test chambers using a large bore glass pipet, minimizing the amount of water added to test solutions.

2.3 Effluent and Laboratory Water

Effluent collection information is provided in Table 1. Samples were stored at 4°C and warmed to 25±1°C prior to preparing test solutions. Effluent used in the *A. bahia* assay was salinity adjusted to 25±2 ppt using artificial sea salts according to protocol (EPA 2002). Laboratory water was collected from the Hampton/Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Total residual chlorine (TRC) was measured by amperometric titration (MDL 0.02 mg/L) in the effluent sample. Samples with ≥0.02 mg/L TRC were dechlorinated using sodium thiosulfate (EPA 2002).

2.4 Acute Toxicity Tests

Test concentrations for the assay were 100%, 50%, 25%, 12.5%, and 6.25% effluent. The 48 hour toxicity tests were conducted at 25±1°C with a photoperiod of 16:8 hours light:dark. Test chambers for the acute assays were 250 mL glass beakers containing 200 mL test solution in each of 4 replicates with 10 organisms/replicate. Survival and dissolved oxygen were measured daily in all replicates. Temperature, salinity pH and specific conductivity were measured daily in one replicate of each test treatment.

2.5 Data Analysis

Data analysis involved, as required, determination of LC-50 values using CETIS, Comprehensive Environmental Toxicity Information System, software. The program computes LC-50 values using the Spearman-Karber and Linear Regress (Probit) methods following protocol guidelines. If survival in the highest test concentration was >50%, LC-50 values were obtained by direct observation of the raw data. The A-NOEC was determined as the highest test concentration which caused no significant mortality.

2.6 Quality Control

As part of the laboratory quality control program, standard reference toxicant assays are completed on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. See Table 2 for details.

3.0 RESULTS AND DISCUSSION

Results of the acute exposure bioassay completed using *A. bahia* are summarized in Table 3. Effluent and dilution water characteristics are presented in Table 4. Toxicity test summary sheets are included after the tables. Support data, including copies of laboratory bench sheets, are included in Appendix A.

Minimum test acceptability criteria require ≥90% survival in the control concentrations. Achievement of these results indicate that healthy test organisms were used and that the dilution water had no significant adverse impact on the outcome of the assay. See the Executive Summary and Table 3 for test acceptability.

4.0 LITERATURE CITED

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater*, 20th edition. Washington D.C.

National Environmental Laboratory Accreditation Conference: Quality Systems. Chapter 5. June 2000.

US EPA. 2002. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*. Fifth Edition. EPA-821-R-02-012.

US EPA. 2008. *Attachment G: NPDES Whole Effluent Toxicity Testing, Monitoring and Reporting Tips and Common Pitfalls*. US EPA Region I Offices, Boston, Massachusetts.

TABLE 1. Summary of Sample Collection Information.
Exxon Mobil Terminal Effluent Evaluation. March 2011.

Sample Description	Type	Collection Date	Collection Time	Receipt Date	Receipt Time	Arrival Temp °C
Outfall 001 A	Grab	03/11/11	1100	03/12/11	0820	2

TABLE 2. Summary of Reference Toxicant Data.
Exxon Mobil Terminal Effluent Evaluation. March 2011.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
A. bahia						
02/22/11	Survival	LC-50 - 48 Hr	25.8	22.2	18.0 - 26.3	SDS (mg/L)

Means and Acceptable Ranges based on the most recent 20 reference toxicant assays

TABLE 3. Summary of Acute Evaluation Results.
Exxon Mobil Terminal Effluent Evaluation. March 2011.

		Survival					
Species	Exposure	Lab	6.25%	12.5%	25%	50%	100%
A. bahia	48 hours	100%	95%	100%	97.5%	97.5%	87.5%

		LC-50 COMPUTATION TECHNIQUE			
Species	Exposure	Spearman-Karber	Linear Regression	Nonlinear Regression	A-NOEC
A. bahia	48 Hours	NC	NC	NC	100%

TABLE 4. Summary of Effluent and Diluent Characteristics. Exxon Mobil Terminal Effluent Evaluation. March 2011.

PARAMETER	UNITS	EFFLUENT	LABORATORY WATER
pH - As Received	SU	7.32	8.06
pH- Salinity Adjusted	SU	7.93	-
Salinity - As Received	ppt	<1	26
Salinity - Salinity Adjusted	ppt	25	-
TRC	mg/L	<0.02	<0.02
Total Solids	mg/L	620	29000
Total Suspended Solids	mg/L	62	10
Ammonia	mg/L as N	0.47	<0.1
Total Organic Carbon	mg/L as C	5	<0.8
Aluminum, total	mg/L	1.9	-
Cadmium, total	mg/L	<0.0005	-
Calcium, total	mg/L	41	-
Chromium, total	mg/L	0.007	-
Copper, total	mg/L	0.018	-
Lead, total	mg/L	0.064	-
Magnesium, total	mg/L	5.8	-
Nickel, total	mg/L	0.006	-
Zinc, total	mg/L	0.12	-

Additional water quality and analytical chemistry support data are available in Appendix A.

TOXICITY TEST SUMMARY SHEET

FACILITY NAME: Exxon Mobil Everett Terminal
NPDES PERMIT NO.: MA0000833
TEST START DATE: 03/12/11
TEST END DATE: 03/14/11

TEST TYPE	TEST SPECIES	SAMPLE TYPE	SAMPLE METHOD
X Acute	___ *Pimephales promelas*	___ Prechlorinated	X Grab
___ Chronic	___ *Ceriodaphnia dubia*	___ Dechlorinated	___ Composite
___ Modified Chronic (Reporting Acute Values)	___ *Daphnia pulex*	___ Chlorine Spiked in Lab	___ Flow-thru
	X *Americamysis bahia*	___ Chlorinated on Site	___ Other
___ 24 Hour Screen	___ *Cyprinodon variegatus*	___ Unchlorinated	
	___ *Menidia beryllina*	X No Detectable Chlorine Upon Receipt	
	___ *Arbacia punctulata*		
	___ *Champia parvula*		
	___ *Selenastrum capricornutum*		

DILUTION WATER:

___ Receiving water collected at a point upstream or away from the discharge, free from toxicity or other sources of contamination; Receiving Water Name: Island End River (Mystic River Watershed)

X Alternate surface water of known quality and hardness, to generally reflect the characteristics of the receiving water; Receiving Water Name: Hampton Estuary

___ Synthetic water prepared using either Millipore Milli-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water.

___ Artificial sea salts mixed with deionized water

___ Deionized water and hypersaline brine

___ Other

EFFLUENT SAMPLING DATES: 03/11/11 _____ _____ _____

EFFLUENT CONCENTRATIONS TESTED (%): 6.25%, 12.5%, 25%, 50%, 100%

Permit Limit Concentration: >50 %

Was the effluent salinity adjusted? Yes If yes, to what level? 25 ppt

REFERENCE TOXICANT TEST DATE: 02/22/11 LC-50: 25.8 mg/L Sodium Dodecyl Sulfate

PERMIT LIMITS AND TEST RESULTS

Test Acceptability Criteria

Mean Control Survival: 100%

LIMITS		**RESULTS**	
LC-50:	>50 %	LC-50	>100%
		Upper Limit:	-
A-NOEC:	____ %	Lower Limit:	-
		Method:	Direct observation
C-NOEC:	____ %	A-NOEC	100%
		C-NOEC	-
IC- ___	____ %	IC- ____	-

APPENDIX A

DATA SHEETS

STATISTICAL SUPPORT

METHODS USED IN NPDES PERMIT BIOMONITORING TESTING

Parameter	Method
Acute Exposure Bioassays:	
Ceriodaphnia dubia, Daphnia pulex	EPA-821-R-02-012
Pimephales promelas	EPA-821-R-02-012
Americamysis bahia	EPA-821-R-02-012
Menidia beryllina, Cyprinodon variegatus	EPA-821-R-02-012
Chronic Exposure Bioassays:	
Ceriodaphnia dubia	EPA-821-R-02-013, 1002.0
Pimephales promelas	EPA-821-R-02-013, 1000.0
Cyprinodon variegatus	EPA-821-R-02-014, 1004.0
Menidia beryllina	EPA-821-R-02-014, 1006.0
Arbacia punctulata	EPA-821-R-02-014, 1008.0
Champia parvula	EPA-821-R-02-014, 1009.0
Trace Metals:	
ICP Metals	EPA 200.7/SW 6010 and EPA 200.8/SW 6020
Hardness	Standard Methods 20th Edition - Method 2340 B
Wet Chemistries:	
Alkalinity	EPA 310.2
Chlorine, Residual	Standard Methods 20th Edition - Method 4500CLD
Total Organic Carbon	Standard Methods 20th Edition - Method 5310 C
Specific Conductance	Standard Methods 20th Edition - Method 2510B
Nitrogen - Ammonia	Standard Methods 20th Edition - Method 4500NH3G
pH	Standard Methods 20th Edition - Method 4500H+B
Solids, Total (TS)	Standard Methods 20th Edition - Method 2540B
Solids, Total Dissolved (TDS)	Standard Methods 20th Edition - Method 2540C
Solids, Total Suspended (TSS)	Standard Methods 20th Edition - Method 2540D
Dissolved Oxygen	Standard Methods 20th Edition - Method 4500-O G

ACUTE BIOASSAY DATA SUMMARY

STUDY: 20747	SAMPLE RECEIVED 3/12/11	"AS RECEIVED" EFFLUENT AND DILUENT CHEMISTRIES									
CLIENT: Exxon Mobil	TEST ORGANISM: *A. bahia*		TRC	TS/S	AMM	TOC	Metals	HARD	SAL	PH	S/C	OTHER
SAMPLE: Terminal Effluent	ORGANISM SUPPLIER ARO	EFF	<0.02	005	004	003	002		0.5	7.32	1069	
DILUENT: Lab Salt	ORGANISM BATCH/AGE <5d	20702 DIL	<0.02	006	005	004			26	8.06	39860	

SALINITY ADJUSTMENT RECORD : 4000 ML EFFLUENT + 113 G SEA SALTS = A-2879 100% ACTUAL PERCENTAGE

CONC	REP	SURVIVAL			DO (mg/L)			pH (SU)			TEMP (°C)			S/C (µmhos/cm)			SALINITY (ppt)			COMMENTS
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48	
LAB	A	10	10	10	7.2	6.0	5.9	8.06	7.85	7.79	24	24	24	39860	40110	41280	26	26	27	
	B	10	10	10	7.2	5.9	5.8													
	C	10	10	10	7.2	5.9	5.8													
	D	10	10	10	7.2	6.0	5.9													
RW	A										24	0		40160			26			
	B																			
	C													—						
	D																			
6.25%	A	10	10	9	7.1	6.0	5.9	8.05	7.93	7.84	24	24	24	40160	40530	41750	26	26	27	
	B	10	10	9	7.1	5.9	5.9													
	C	10	10	10	7.1	5.9	5.8													
	D	10	10	10	7.1	5.9	5.8													
12.5%	A	10	10	10	7.3	5.9	5.8	8.05	7.94	7.85	24	24	24	40410	40790	41710	26	26	27	
	B	10	10	10	7.3	5.9	5.9													
	C	10	10	10	7.3	5.9	5.9													
	D	10	10	10	7.3	6.0	5.9													

ACUTE BIOASSAY DATA SUMMARY

STUDY: 20747	SAMPLE RECEIVED 3/12/11	"AS RECEIVED" EFFLUENT AND DILUENT CHEMISTRIES									
CLIENT: Exxon Mobil	TEST ORGANISM: *A. bahia*		TRC	TS/S	AMM	TOC	ALK	HARD	SAL	PH	S/C	OTHER
SAMPLE: Terminal Effluent	ORGANISM SUPPLIER ARO	EFF	see page 1 of 2									
DILUENT: Lab Salt	ORGANISM BATCH/AGE <5d	DIL										

SALINITY ADJUSTMENT RECORD : ML EFFLUENT + G SEA SALTS = 100% ACTUAL PERCENTAGE

CONC	REP	SURVIVAL			DO (mg/L)			pH (SU)			TEMP (°C)			S/C (µmhos/cm)			SALINITY (ppt)			COMMENTS
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48	
25%	A	10	10	10	7.3	6.0	5.9	8.03	7.95	7.91	24	24	24	40040	40680	41470	26	26	27	
	B	10	10	10	7.3	5.8	5.8													
	C	10	10	10	7.3	5.9	5.9													
	D	10	10	9	7.3	5.9	5.9													
50%	A	10	10	10	7.6	5.7	5.6	7.99	8.00	7.97	24	24	24	39840	40860	41960	25	26	27	
	B	10	10	10	7.6	5.7	5.6													
	C	10	10	9	7.6	5.7	5.7													
	D	10	10	10	7.6	5.6	5.6													
100%	A	10	10	9	9.2	5.5	5.3	7.93	8.01	8.09	24	24	24	39420	40020	41030	25	26	26	
	B	10	10	8	9.2	5.3	5.2													
	C	10	10	9	9.2	5.2	5.2													
	D	10	10	9	9.2	5.2	5.1													
DATE		3/12/11	3/13	3/14	3/12/11	3/13	3/14													
TIME		1325	1400	1130	1300	1355	1125													
INITIALS		LB	DM	DM	LB	DM	DM													

Rec 3/12/11

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species AMERICAMYSIS bahia

Source: Lab reared ✓ Hatchery reared _____ Field collected _____

Hatch date 3-10-11 Receipt date _____

Lot number 031011MS Strain _____

Brood origination FLORIDA

II. Water Quality

Temperature 25 °C Salinity ~30 ppt D.O. — ppm

pH 7.8 su Hardness — ppm Alkalinity — ppm

III. Culture Conditions

Freshwater _____ Saltwater ✓ Other _____

Recirculating ✓ Flow through _____ Static _____

DIET: Flake food ✓ Phytoplankton _____ Trout chow ✓

Artemia ✓ Rotifers _____ YCT _____ Other ENCAP. Shrimp DIET

Prophylactic treatments: _____

Comments: _____

_____

IV. Shipping Information

Client: EST # of Organisms 180+

Carrier: _____ Date shipped 3-12-11

Biologist: Mark Tedengren

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

PREPARATION of DILUTIONS

STUDY:	CLIENT: Exxon Mobil	
SPECIES: *A. bahia*		
Diluent: Lab Salt	Sample: EO	
Concentration	Vol. Eff.(mls)	Final Vol.(mls)
Lab	0	800
6.25%	50	↓
12.5%	100	
25%	200	
50%	400	
100%	800	
INITIALS:	LB	
TIME:	1135	
DATE:	3/12/11	

RECORD OF METERS USED

STUDY:		CLIENT: Exxon Mobil	
A.bahia			
Exposure (Hours)			
	0	24	48
Water Quality Station #	1	1	1
Initials / Date	LB 3/12/11	DM 3-13-11	DM 3-14-11

Water Quality Station #1		Water Quality Station #2		COMMENTS
DO meter #	24	DO meter #		
DO probe #	89	DO probe #		
pH meter #	1097	pH meter #		
pH probe #	93	pH probe #		
S/C meter #	YSI30E	S/C meter #		
S/C probe #	↓	S/C probe #		
Salinity meter #		Salinity meter #		

Report No: 20747 SDG:
Project: Exxon Mobil

Sample ID: Effluent Start
Matrix: Water
Sampled: 03/11/11 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total solids	20747-005	620	10	mg/L	03/16/11 0907	03/16/11 1020	EAL/SM2540B
Total suspended solids	20747-005	62	2.5	mg/L	03/15/11 1417	03/15/11 1417	EAL/SM 2540D
Ammonia-N	20747-004	0.47	0.1	mg/L as N	03/16/11 1453	03/16/11 1453	JLH/SM 4500-NH3 G
Total organic carbon	20747-003	5	0.4	mg/L	03/14/11	03/15/11	EAL/SM 5310 C
Aluminum, total	20747-002	1.9	0.02	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Cadmium, total	20747-002	ND	0.0005	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Calcium, total	20747-002	41	0.05	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Chromium, total	20747-002	0.007	0.002	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Copper, total	20747-002	0.018	0.002	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Lead, total	20747-002	0.064	0.0005	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Magnesium, total	20747-002	5.8	0.05	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Nickel, total	20747-002	0.006	0.002	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8
Zinc, total	20747-002	0.12	0.002	mg/L	03/18/11 0830	03/18/11	JLH/EPA 200.8

Notes:

ND = Not Detected

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20702 SDG:
Project: Diluent - Laboratory Seawater

Sample ID: Lab Salt 03/12/11
Matrix: Water
Sampled: 03/12/11 1225

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total solids	20702-006	29000	50	mg/L	03/16/11 0907	03/16/11 1020	EAL/SM2540B
Total suspended solids	20702-006	10	2.5	mg/L	03/15/11 1417	03/15/11 1417	EAL/SM 2540D
Ammonia-N	20702-005	ND	0.1	mg/L as N	03/16/11 1526	03/16/11 1526	JLH/SM 4500-NH3 G
Total organic carbon	20702-004	ND	0.8	mg/L	03/14/11	03/15/11	EAL/SM 5310 C

Notes:

ND = Not Detected

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20747		
SDG No:	Exxon Mobil		
Project:	Exxon Mobil		
Delivered via:	ESI		
Date and Time Received:	03/12/11 0820	Date and TIme Logged into Lab:	03/12/11 1035
Recieved By:	DW	Logged into Lab by:	LB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	2	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	A1007127		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
Effluent Start	20747-001	W	AB48AD StartSample	2x3750 P	4 C	
Effluent Start	20747-002	W	Total Metals Cd,Cr,Ni,Pb,Cu,Zn,Al,Ca,Mg;	250 P	HNO3	
Effluent Start	20747-003	W	TOC	1x40 G	H2SO4	
Effluent Start	20747-004	W	NH3;	125 P	H2SO4	
Effluent Start	20747-005	W	TS,TSS-Low	2x1000 P	4 C	

Notes and qualifications:

ESI

EnviroSystems, Inc.
1 Lafayette Road
Hampton, NH 03842

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20747

CHAIN OF CUSTODY DOCUMENTATION

Client: Triumvirate Environmental/Exxon Mob	Contact: Arthur Powers & Sandra Perry	Project Name: Exxon Mobil	
Report to: Arthur Powers & Sandra Perry	Address: 61 Inner Belt Rd.	Project Number: P0335	Task: 0001
Invoice to: Sandra Perry	Address: Somerville, MA 02143	Project Manager: Arthur Powers & Sandra Perry	
Voice: 617-715-8947	Fax: NA	email: vsreng@triumvirate.com	ERR

Protocol: NPDES

Lab Number (assigned by lab)	Your Field ID: (must agree with container) Outfall 001A	Date Sampled	Time Sampled	Sampled By	Grab or composite (G/C)	Container No	Container Size (mL)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	Effluent Start	3-1-11	1100	V.Sprau	G	2	3750	P	4 C	Water	N	AB48AD StartSample
002	Effluent Start	↓	↓	↓	↓	1	250	P	HNO3	Water	N	Total Metals Cd,Cr,Ni,Pb,Cu,Zn,Al,Ca,Mg;
003	Effluent Start					1	40	G	H2SO4	Water	N	TOC
004	Effluent Start					1	125	P	H2SO4	Water	N	NH3;
005	Effluent Start	↓	↓	↓	↓	2	1000	P	4 C	Water	N	TS,TSS-Low

Relinquished By: [signature]	Date: 3-2-11	Time: 0820 AM	Received By: [signature] Date: 3-2-11 Time: 0820 AM
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

ERR

COC Number: A1007127

Sample Delivery Group No: July 2010